

## CLAIMS

What is claimed is:

- 1 1. A method, comprising:
  - 2 loading a bootstrap program into an area of a memory of a service module
  - 3 that was occupied by a run time program, the bootstrap program loaded after the
  - 4 service module is reset due to an error while executing the run time program,
  - 5 wherein the service module does not have a storage capability;
  - 6 capturing a memory image of the memory using the bootstrap program; and
  - 7 sending the captured memory image to a control module using a bus shared
  - 8 by the control module and the service module, wherein the control module is
  - 9 configured to receive captured memory images from one or more service modules.
- 1 2. The method of claim 1, further comprising allocating communication buffers
  - 2 used by bootstrap program in the area of memory that was occupied by the run
  - 3 time program.
- 1 3. The method of claim 1, wherein the captured memory image of the memory is
  - 2 compressed before being sent to the control module.
- 1 4. The method of claim 1, wherein capturing the memory image comprises:
  - 2 reading a first block of memory; and

- 3 compressing the first block of memory into a compressed unit before reading a  
4 second block of memory using a compression algorithm.
- 1 5. The method of claim 4, wherein one or more blocks of memory is compressed  
2 into the compressed unit until the compressed unit reaches a predetermined size.
- 1 6. The method of claim 5, wherein sending the captured memory image to the  
2 control module comprises sending one or more compressed units to the control  
3 module.
- 1 7. The method of claim 6, wherein the one or more compressed units is stored  
2 as a file in a persistent storage of the control unit.
- 1 8. The method of claim 4, wherein the compression algorithm is a zip algorithm.
- 1 9. The method of claim 1, further comprising loading the run time program into  
2 the memory of the service module after sending the captured memory image to  
3 the control module.
- 1 10. A computer readable medium having stored thereon sequences of  
2 instructions which are executable by a system, and which, when executed by the  
3 system, cause the system to:

4       load a bootstrap program into an area of a memory of a service module that  
5       was occupied by a run time program, the bootstrap program loaded after the  
6       service module is reset due to an error while executing the run time program,  
7       wherein the service module does not have a storage capability;  
8       capture a memory image of the memory using the bootstrap program; and  
9       send the captured memory image to a control module using a bus shared by  
10      the control module and the service module, wherein the control module is  
11      configured to receive captured memory images from one or more service modules.

1      11. The computer readable medium of claim 10, further comprising instructions to  
2      allocate communication buffers used by bootstrap program in the area of memory  
3      that was occupied by the run time program.

1      12. The computer readable medium of claim 10, wherein the captured memory  
2      image of the memory is compressed before being sent to the control module.

1      13. The computer readable medium of claim 10, wherein the instructions to  
2      capture the memory image comprises instructions to:  
3          read a first block of memory; and  
4          compress the first block of memory into a compressed unit before reading a  
5      second block of memory using a compression algorithm.

1 14. The computer readable medium of claim 13, wherein one or more blocks of  
2 memory is compressed into the compressed unit until the compressed unit  
3 reaches a predetermined size.

1 15. The computer readable medium of claim 14, wherein the instructions to send  
2 the captured memory image to the control module comprises instructions to send  
3 one or more compressed units to the control module.

1 16. The computer readable medium of claim 15, wherein the one or more  
2 compressed units is stored as a file in a persistent storage of the control unit.

1 17. The computer readable medium of claim 13, wherein the compression  
2 algorithm is a zip algorithm.

1 18. The computer readable medium of claim 10, further comprising instructions to  
2 load the run time program into the memory of the service module after sending the  
3 captured memory image to the control module.

1 19. A system, comprising:  
2 a memory; and  
3 a processor coupled with the memory, the processor configured by a  
4 bootstrap program to capture a memory image of the memory after the processor  
5 is reset when an error occurs while executing a run time program, wherein the

6 bootstrap program is loaded into an area of the memory occupied by the run time  
7 program when the error occurs.

1 20. The system of claim 19, wherein the captured memory image is sent out to a  
2 bus using communication buffers allocated in the area of the memory occupied by  
3 the run time program, the memory areas occupied by the bootstrap program and  
4 allocated to the communication buffers do not overlap.

1 21. The system of claim 20, wherein the captured memory image is sent out to the  
2 bus in compressed form.

1 22. A system comprising:  
2 a memory means;  
3 means for loading a bootstrap program into a first memory area of the memory  
4 means, the memory area previously occupied by a run time program, the  
5 bootstrap program loaded after a reset due to an error while executing the run  
6 time program;  
7 means for capturing a memory image of the memory means; and  
8 means for transferring the captured memory image to a control module.

1 23. The system of claim 22, wherein the means for capturing the memory image  
2 comprises means for capturing an image of a second memory area used by the  
3 run time program as a data area when the error occurs.

- 1 24. The system of claim 22, wherein the means for transferring the captured
- 2 memory image comprises means for compressing the captured memory image.
- 1 25. The system of claim 24, wherein the captured memory image is transferred
- 2 using communication buffers allocated in the first memory area.